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Successful treatment of severe pulmonary tuberculosis utilizing intensification therapy with levofloxacin and linezolid: a case report

B. Singh*, S. Scholand

St. Marys's Hospital, Waterbury, CT, USA

Background: Tuberculosis (TB) remains a worldwide infectious disease of concern and the spectre of multidrug resistant TB is increasing. Linezolid and levofloxacin are two oral antibiotics with known activity against *Mycobacterium tuberculosis* (MTB). In settings of drug resistant TB, the role of these agents is emerging. We treated a patient with prolonged viable Acid Fast Bacilli (AFB) with an intensified six drug regimen of levofloxacin, linezolid, rifampin, isoniazid, pyrazinamide and ethambutol.

Methods: A 53 year old Black male with diabetes mellitus and alcohol abuse presented with six days of fever, night sweats, dyspnea, and cough with yellow sputum. Physical exam showed temperature of 100.70F, pulse 116, and respiratory rate of 22, with ambient oxygen saturation 87%. The patient appeared cachectic. Breath sounds were coarse, with some reduction in both upper lung fields. Laboratory data indicated anemia and guaiac positive stools. A subsequent colonoscopy showed near obstructing colon cancer. Chest radiograph showed left sided lung consolidation with upper lobe cavitation. Sputum demonstrated AFB. He was started on rifampin, isoniazid, pyrazinamide, and ethambutol. After 35 days, his fever continued. Sputum smear and cultures remained positive. Therapy was intensified with levofloxacin and linezolid. His nutrition was optimized. The colon cancer was resected. The MTB isolate was reported as pan sensitive.

Results: Finally, after 64 days, 3 consecutive sputum samples were negative. His fever resolved. He was discharged on isoniazid and rifampin for an extended period of 7 months.

Conclusion: The mean time for sputum conversion after initiation of appropriate therapy in the U.S. varies from 24 to 33 days. Various factors that delay this include initial cavitary disease, high sputum bacillary load, and multidrug resistance TB (MDR-TB). Pending sensitivity data with prolonged viable AFB in sputum samples, concerns for MDR-TB were raised. We chose a trial of six drug intensified treatment including levofloxacin and linezolid with standard antituberculous therapy. We observed no adverse effects of treatment after one month with these additional drugs. We believe the addition of levofloxacin and linzeolid is worthy of further study in patients with difficult tuberculous disease.

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Evaluation of rapid TB antigen MPT64 test for identification of *Mycobacterium tuberculosis* complex in liquid culture isolates at tertiary care center in Northern India

A.K. Singh[1,*], T. Dhole[1], A.K. Maurya[2], A.K. Singh[3], M. Kumar[1], J. Umrao[1], V. Nag[1]

[1] *Sanjay Gandhi Postgraduate Institute of Medical Sciences Raebareli Road Lucknow UP India 226014, Lucknow, UP, India*
[2] *Chhatrapati Shahuji Maharaj Medical University UP, Lucknow, IN, Lucknow, UTTAR PRADESH, India*
[3] *Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, UP, India*

Background: Tuberculosis (TB) is a global pandemic and India is the major TB endemic country. Rapid and accurate diagnosis of TB is crucial to facilitate early treatment of infection and thus to reduce its spread. Spectrum of infection and treatment of *Mycobacterium tuberculosis* complex (MTBC) and nontuberculous mycobacteria (NTM) are entirely different. Newer techniques like molecular detection techniques are sensitive and enough to detect and discriminate. These tests are more sophisticated and require expensive equipment. This study was conducted to evaluate the usefulness of TB Ag MPT64 Kit (SD Bioline) for simple and rapid discrimination between the MTBC and NTM in clinical isolates from liquid culture, considering GenoType Mycobacterium CM as gold standard.

Methods: A total of 161 BacT/ALERT MP® positive cultures (BacT/ALERT 3D TB System *bioMérieux*, SA) from clinical isolates during January 2010 to December 2011 were tested with MPT64 kit as per manufacturer's instructions. Briefly, 100 μl aliquot of the positive culture media were placed in to the kit's well, followed by 15 minutes to incubation. Results were read as positive for *M. tuberculosis* complex by observing presence of line of precipitation (s). Further all these isolates were subjected for identification by GenoType Mycobacterium CM (HAINS Lifesciences, GmbH Germany).

Results: Out of 161 culture positive isolates were tested by MPT64 kit; 111 (68.9%) were positives (MTBC) and 50 (31.1%) were negative (NTM). We compared MPT64 kit with GenoType Mycobacterium CM (gold standard) for the detection of MTBC. The sensitivity, specificity, positive and negative predictive values of MPT64 kit for identifying MTBC were 99%, 100%, 98.1%, and 100% respectively. Overall performance of MPT64 kit was excellent, simple, easy, rapid and less time consuming as compared with GenoType Mycobacterium CM.

Conclusion: Rapid TB antigen MPT64 kit is applicable for positive liquid culture media, and does not require any special equipment. It can be used for rapid differentiation between MTB-Cand NTM and helpful in early diagnosis of MTBC and appropriate management of tuberculosis cases so that spread of TB may be reduced.

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